



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/530,177

07/14/2005

Satochi Futami

4934-2

5594

23117

7590

03/14/2008

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

MCCLENDON, SANZA L

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

03/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,177	Applicant(s) FUTAMI ET AL.	
	Examiner Sanza L. McClendon	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the Amendment received on December 7, 2007, the examiner has carefully considered the amendments. The examiner acknowledges the cancellation of claim 3 and the addition of new claims 11-13.

Response to Arguments

2. Applicant's arguments, filed December 07, 2008, regarding the rejection based upon Duecker et al (US 5,881,194; 6,122,428; and 6,449,413) are persuasive. Therefore the rejection of claims 1, 5-6, and 8-9 under 35 USC 102(b) as being anticipated by Duecker et al (as found above) has been withdrawn. Duecker et al does not teach a mono-functional unsaturated compound, wherein said compounds include the aromatic acrylic-based monomer having the formula as found in the instantly written claims. Duecker et al specifically teaches only mono-functional aliphatic alkyl (meth) acrylates.

3. Applicant's arguments regarding the 35 USC 103(a) portions of the rejections based on Takase et al (2003/021943 and 6,710,097) not persuasive. Applicant appears to be invoking 35 USC 103(c) to disqualify Takase et al as prior art. It appears that applicant's effective filing date per PALM is 4/01/2005 which is after the publication/patent date of the cited references. Taking the publication/patent dates of Takase et al into consideration, it appears that Takase et al references are applicable to rejected under 35 USC 102(a) and 35 USC 102(b).

4. Additionally, Applicant appears to be arguing that Takase et al does not teach component (C) at a weight ratio of 10-25--wt% as instantly claimed; that Takase et al does not disclose compositions containing a (meth) acrylate monomer having 4 or more functional groups at a weight ratio of 10--wt% of more and that the compositions of Example 4 teaches using 4 or more functional acrylate monomer at a weight ratio of 1.9--wt%; and additionally, referring to the portions of the Office Action, mailed 6/12/07, where the examiner asserted that "b/c polyfunctional compounds are disclosed useable together in the composition thus deemed that these are equivalents and thus the combination fails to anticipate the 5-25--wt% of component (C) saying this is a unsound argument. However, the

examiner disagrees. What the examiner was trying to convey, was not that compounds were equivalents (i.e., equal or the same) but that since Takase et al teaches the use of polyfunctional compounds can be used in combination and/or singly (inferred from the examples) that it would have been within an artisan's skill level to use, say, in place of the combination of polyfunctional monomers as found in (example 4) up to 25% of one polyfunctional compounds such as (E-5). The motivation would have been a reasonable expectation of successfully tailoring the crosslink density in the cured product in the absence of unexpected results and/or convincing arguments to the contrary.

5. Note the Takase et al sets forth teachings that read on new claims 11-13—see page 3, section [0030] for claims 11 and 12 and page 3, section [0023] for claim 15. It is additionally, deemed that claim 10 is rendered obvious by the teaching in Takase et al that teaches the compounds of formula (1) can be added in amounts from 10-70--wt%, wherein the lower limit is provided for ensuring both adhesion to the substrate and the refractive index. Therefore, it would have been obvious to use a compound having general formula (1), such as phenoxy ethyl (methacrylate), in the lower limit range of 10 to 70-wt% in the composition, the motivation would have been a reasonable expectation of obtaining the success of achieving comparable results (good substrate adhesion and refractive index) based upon the disclosure in section [0030].

Claim Rejections - 35 USC § 102/35 USC § 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 5-9, and 11-13 are rejected under 35 U.S.C. 102 (b) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over Takase ET al (6,710,097).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Takase et al sets forth compositions for optical parts curable by actinic radiation. Said cured compositions have a refractive index of 1.53 or more, preferably 1.54 or more; at least one peak/shoulder at a temperature range between -150 to 100 °C, in a temperature dependence curve of a loss tangent obtained from a temperature dependence measurement of dynamic viscoelasticity (see figures and column 9), and a modulus which is deemed to encompass the claimed modulus in the range of .5 kg/mm² and 30 kg/mm² (4.9 MPa to 294.9 Mpa, wherein per examples 2 and 3 the modulus of elasticity is 5 to 6 kg/mm² (49 and 58 MPa, respectively).

The composition comprises a urethane (meth) acrylate having a polyether polyol backbone, a mono-functional (meth) acrylate compound, and photoinitiator. Said urethane is obtained by a reaction between a polyether polyol, an organic diisocyanate, and a hydroxyl containing (meth) acrylate monomer. In addition, composition can further comprise polyfunctional (meth) acrylic and other monomers, additives, heat initiators, other curable polymers and the like. The urethane polyether (meth) acrylate can be found in amounts from 20 to 80—wt%. Said mono-functional

(meth) acrylate can be found in amounts from 10-70—wt%. The photoinitiator can be found in amounts from 0.01 to 10—wt%. Per examples, it appears that the amount of polyfunctional (meth) acrylate compounds can be used in amounts up to about 20—wt% (this is from the combination of E3 to E5 in example 5). Per column 7, lines 45 and example 4, Takase et al teaches a dipentaerythritol hexa (meth) acrylate as a useable polyfunctional polymer. Thus claim is anticipated.

While Takase et al does limit the composition to using polyfunctional (meth) acrylates having 4 or more functional groups, it is deemed that the disclosure of the (hexa) methacrylate compound in column 7 anticipates this limitation and because the polyfunctional compounds are disclosed as useable in the composition it is deemed that these are equivalents and thus the combination of polyfunctional materials anticipates the 5-25-wt% limitation. In addition, because they are disclosed as equivalents it would have been within the skilled artisans level to use up to 22-wt% of the disclosed hexa-functional (meth) acrylate compound—see above for explanation. In the alternative, the examiner deems that (meth) acrylates having 4 or more functional groups would have been obvious to a skilled artisan to use 4 or higher polyfunctional (meth) acrylates because of functionality since it is known that analogs have similar reactivity.

9. Claims 1-3, 5-9, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Takase et al (2003/0021943)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Takase et al sets forth compositions for optical parts curable by actinic radiation. Said cured compositions have a refractive index of 1.53 or more, preferably 1.54 or more; at least one peak/shoulder at a temperature range between –150 to 100 °C, in a temperature dependence curve of a loss tangent obtained from a temperature dependence measurement of dynamic viscoelasticity (see figures and column 9), and a modulus which is deemed to encompass the claimed modulus in the

Art Unit: 1796

range of .5 kg/mm² and 30 kg/mm² (4.9 MPa to 294.9 Mpa, wherein per examples 2 and 3 the modulus of elasticity is 5 to 6 kg/mm² (49 and 58 MPa, respectively).

The composition comprises a urethane (meth) acrylate having a polyether polyol backbone, a mono-functional (meth) acrylate compound, and photoinitiator. Said urethane is obtained by a reaction between a polyether polyol, an organic diisocyanate, and a hydroxyl containing (meth) acrylate monomer. In addition, composition can further comprise polyfunctional (meth) acrylic and other monomers, additives, heat initiators, other curable polymers and the like. The urethane polyether (meth) acrylate can be found in amounts from 20 to 80—wt%. Said mono-functional (meth) acrylate can be found in amounts from 10-70—wt%. The photoinitiator can be found in amounts from 0.01 to 10—wt%. Per examples, it appears that the amount of polyfunctional (meth) acrylate compounds can be used in amounts up to about 20—wt% (this is from the combination of E3 to E5 in example 5). Per column 7, lines 45 and example 4, Takase et al teaches a dipentaerythritol hexa (meth) acrylate as a useable polyfunctional polymer. Thus claim is anticipated.

While Takase et al does limit the composition to using polyfunctional (meth) acrylates having 4 or more functional groups, it is deemed that the disclosure of the (hexa) methacrylate compound in column 7 anticipates this limitation and because the polyfunctional compounds are disclosed as useable in the composition it is deemed that these are equivalents and thus the combination of polyfunctional materials anticipates the 5-25-wt% limitation. In addition, because they are disclosed as equivalents it would have been within the skilled artisans' level to use up to 22-wt% of the disclosed hexa-functional (meth) acrylate compound--see above for explanation. In the alternative, the examiner deems that (meth) acrylates having 4 or more functional groups would have been obvious to a skilled artisan to use 4 or higher polyfunctional (meth) acrylates because of functionality since it is known that analogs have similar reactivity.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takase et al (as found above) in view of Yamashita et al (2003/0021943 and 6,710,097).

Takase et al does not expressly teach using triphenyl phosphine in the composition for optical parts. However, Takase et al teaches as an additive that plasticizers can be added. It is well known in the optical part art to use plasticizers to UV curable compositions such as, triphenyl phosphine to improve adhesion of the cured compositions. Yamashita et al teaches UV curable compositions for making Fresnel lens. Said compositions comprise a urethane acrylate compound, reactive diluents (mono- and polyfunctional) and a photoinitiator. Yamashita et al teaches plasticizers can be added to such compositions for improving adhesion in amounts from 3 to 15—wt%. In addition, it is disclosed that triphenyl phosphine is preferable because it has a high refractive index—see column 6. Therefore, the examiner deems that it would have been obvious to use a plasticizer such as triphenyl phosphine as suggested by Yamashita et al in the compositions of Takase et al. The motivation would have been a reasonable expectation of obtained an optical part having good adhesion to a substrate and a high refractive index in the absence of evidence to the contrary. Takase et al and Yamashita et al are analogous art, which is the art of optical parts with high refractive indices from UV curable compositions.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takase et al (2003/0021943 and 6,710,097).

Takase et al is disclosed in the above rejections. It appears claim 10 is read in the teachings of the reference. Takase et al teaches the compounds of formula (1) can be added in amounts from 10-70--wt%, wherein the lower limit is provided for ensuring both adhesion to the substrate and the refractive index. Therefore, it would have been obvious to use a compound having general formula (1), such as phenoxy ethyl (methacrylate), in the lower limit range of 10 to 70-wt% in the

Art Unit: 1796

composition, the motivation would have been a reasonable expectation of obtaining the success of achieving comparable results (good substrate adhesion and refractive index) based upon the disclosure in section [0030].

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sanza L McClendon/

Primary Examiner

Art Unit 1796

SMe